



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

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April 22, 2015

Mr. Kenneth W. Ryan
Peabody Monofill Associates
Covanta Springfield
188 M Street
Agawam, Massachusetts 01001

RE: PEABODY
Transmittal No.: X264467
Application No.: NE-15-003
Class: SM-25
FMF No.: 266441
AIR QUALITY PLAN APPROVAL

Dear Mr. Ryan:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Air and Waste, has reviewed your Limited Plan Application ("Application") listed above. This Application concerns the proposed construction and operation of a drum dryer at your metal recycling facility and associated ash handling equipment located at 40 Farm Avenue in Peabody, Massachusetts 01960 ("Facility").

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control" regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

Covanta TARTECH LLC (Covanta) has installed and operated a metal recycling facility, approved by MassDEP on April 12, 2013 as a Demonstration Project, at the landfill owned and operated by Peabody Monofill Associates (“Permittee”), a wholly owned subsidiary of Covanta Energy Corporation. The metal recycling facility is designed to process ash from the landfill for the purpose of recovering scrap metal for recycling. Soon after the metal recycling facility began operation in January 2014, the Facility encountered operational issues due to higher than expected moisture content of the ash (approximately 20 to 30 percent by weight), which was adversely impacting its ability to recover metal. In April 2014, a short term pilot scale test was completed using a drum dryer to reduce the moisture content of the ash prior to processing it through the metal recycling facility. Ash having a marginally lower moisture level (below 20 percent by weight, i.e., in the “high teens”) greatly improves the Facility’s ability to process the ash and recover metal. Based upon the results of the pilot scale test, Covanta is proposing to install and operate, as part of this Application, a production scale natural gas fired rotary drum dryer (EU1) next to the metal recycling facility.

Ash from the landfill is excavated and loaded into dump trucks for delivery to the metal recycling facility. The high moisture content ash will be temporarily staged in an area contained on two sides by concrete block walls prior to being fed by an excavator into the hopper of the Facility’s existing crusher and through the new rotary drum dryer and the rest of the metal recycling facility. The Permittee plans to limit storage of ash in this area next to the crusher to no more than 450 wet tons in order to limit the ash’s exposure to the detrimental effects of weather (e.g., rain). The likelihood of fugitive emissions from the storage pile will be minimal given the ash’s significant moisture content. However, the Permittee will employ a dedicated water truck and water misting sprays, if necessary, to control potential fugitive emissions in this storage area and from the onsite roadways.

The rotary drum dryer and metal recycling facility is designed to process ash at a maximum feed rate of 200 wet tons per hour, as measured on the first conveyor belt scale immediately after the crusher and prior to the rotary drum dryer. To provide operational flexibility and allow the new rotary drum dryer to continue to operate efficiently, a new bypass ash storage building will be installed to receive lower moisture content ash exiting the rotary drum dryer should the downstream metal recycling facility develop an operational or mechanical problem or be offline. Once the downstream metal recycling facility is again operational, a front end loader will feed ash stored in the bypass ash storage building into a feed hopper inside the building in order to convey ash to the metal recycling facility. A water misting system will be used inside the fully enclosed bypass ash storage building to prevent potential fugitive emissions. The bypass ash storage building will have a rollup door to allow for the entry of the front end loader. The entrance doorway will be equipped with a water misting nozzle bar along the top of the doorway to control potential fugitive emissions. The bypass ash storage building feed hopper will also be equipped with a water misting nozzle bar along the length of the feed hopper to control potential fugitive emissions during loading.

The Permittee will continue to use covered conveyors, enclosed conveyor transfer points, and other enclosed equipment (e.g., screening operations and metal recovery equipment). Water sprays will continue to be deployed at all applicable ash transfer points in the process to control potential fugitive emissions and shrouding will be employed for transfer of processed ash into trucks for transport back to the landfill. After being processed, ash is unloaded from a conveyor into a three sided bunker with 16-foot high walls. The discharge into the bunker is through a telescoping chute that goes up and down with the height of the ash pile to minimize the drop height. The telescoping chute and conveyor have misting nozzles to control potential fugitive emissions within the three sided bunker. Recovered metals from the ash will be stored in an existing building onsite while awaiting offsite shipment.

The new rotary drum dryer will be equipped with a low NO_x burner and flue gas recirculation in order to minimize NO_x emissions. The burner will combust only natural gas and will have an energy heat input rating of 39.5 million British thermal units per hour. Exhaust gases from the rotary drum dryer will be routed through a baghouse and stack exiting at least 10 feet above the highest nearby structure, the new bypass ash storage building. During normal operations, the baghouse will be designed to achieve greater than or equal to 99.99 percent particulate matter (PM) removal efficiency, but during periods when inlet loading to the baghouse is low, a marginally lower efficiency will be expected but the PM emission rate will not exceed 0.01 grains per dry standard cubic feet. To ensure proper operation of the baghouse, its inlet temperature and differential pressure will be monitored continuously and visually and audibly alarmed to alert Facility personnel of the need to make corrective actions. The system will include an emergency damper to introduce cooling air into the exhaust to automatically lower the inlet temperature if it reaches the alarm level.

Best Available Control Technology (BACT) emission limits for the rotary drum dryer and associated ash material handling equipment are defined in Table 2.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Pollution Control Device (PCD)
EU1	Allgaier Process Technology GmbH Rotary Drum Dryer TT230/15 D ZL OB K G	39.5 MMBtu/hr 200 wet tons of ash per hour	Low NO _x Burner (PCD1) Flue Gas Recirculation (PCD2) Fabric Filter/Baghouse (PCD3)
EU2	Ash Material Handling Equipment	200 wet tons of ash per hour	Enclosed Processes, Conveyors, and Transfer Points (PCD4) Water Truck and Water Misting Sprays (PCD5)

Table 1 Key:

EU# = Emission Unit Number
 PCD = Pollution Control Device
 MMBtu/hr = million British thermal units per hour
 NO_x = Oxides of Nitrogen
 NA = Not Applicable

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit
EU1	1. Natural Gas Fuel Only 2. Hours of Operation: ≤ 720 hr/month ≤ 5000 hr/yr 3. Maximum Ash Processing Rate: (1) ≤ 200 wet tons/hour 4. Maximum Exhaust Flow Rate: ≤ 31,500 DSCFM 5. Fuel Heat Input: ≤ 27.9 MMCF/month ≤ 193.6 MMCF/yr	PM/PM ₁₀ /PM _{2.5} (filterable)	≤ 0.01 gr/DSCF or ≥ 99.99% removal efficiency, whichever is less stringent ≤ 1.0 TPM ≤ 6.75 TPY
		NO _x	≤ 0.044 lb/MMBtu ≤ 0.6 TPM ≤ 4.35 TPY
		CO	≤ 0.10 lb/MMBtu ≤ 1.4 TPM ≤ 9.88 TPY
		VOC	≤ 0.0054 lb/MMBtu ≤ 0.08 TPM ≤ 0.53 TPY
		SO ₂	≤ 0.0006 lb/MMBtu ≤ 0.01 TPM ≤ 0.06 TPY
		HAP (single) - Hexane	≤ 0.00176 lb/MMBtu ≤ 0.025 TPM ≤ 0.17 TPY
		HAPs (total)	≤ 0.00185 lb/MMBtu ≤ 0.03 TPM ≤ 0.18 TPY
		CO ₂	≤ 117.6 lb/MMBtu ≤ 1,700 TPM ≤ 11,618 TPY
EU2	6. Hours of Operation: ≤ 720 hr/month ≤ 5000 hr/yr 7. Maximum Ash Processing Rate: (1) ≤ 200 wet tons/hour	PM ₁₀	≤ 0.56 lb/hr ≤ 0.20 TPM ≤ 1.39 TPY
		PM _{2.5}	≤ 0.21 lb/hr ≤ 0.08 TPM ≤ 0.53 TPY

Table 1 Notes:

1 Ash processing rate shall be measured utilizing the first conveyor belt scale immediately after the crusher and prior to the rotary drum dryer.

Table 2 Key:

EU# = Emission Unit Number

NO_x = Nitrogen Oxides

CO = Carbon Monoxide

SO₂ = Sulfur Dioxide

PM = Total Particulate Matter

PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter

PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter

VOC = Volatile Organic Compounds

HAP (single) = maximum single Hazardous Air Pollutant

HAPs (total) = total Hazardous Air Pollutants.

CO₂ = Carbon Dioxide

hr/yr = hours per year

DSCFM = dry standard cubic feet per minute

MMCF = million cubic feet

MMCF/yr = million cubic feet per year

gr/DSCF = grains per dry standard cubic feet

lb/MMBtu = pounds per million British thermal units

lb/hr = pounds per hour

TPM = tons per month

TPY = tons per consecutive 12-month period

≤ = less than or equal to

> = greater than

≥ = greater than or equal to

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
EU1	1. Monitor natural gas consumption with a fuel flow meter on a monthly and 12-month rolling period basis.
	2. Operate and maintain PCD3 in accordance with the manufacturer's recommendations. Monitor exhaust gas temperature continuously at the inlet to the baghouse and operate the dilution cooling air damper as necessary to ensure that the inlet temperature to the baghouse does not exceed the manufacturer's recommended maximum value. Monitor pressure drop across the baghouse continuously with a differential pressure transmitter to ensure that the pressure drop does not exceed the manufacturer's recommended maximum value. Audible and visible alarms shall be installed and operated at the operator's station to alert Facility personnel in the event that the baghouse inlet temperature or differential pressure exceeds the manufacturer's recommended maximum values. Facility personnel shall promptly respond to investigate and initiate corrective action in accordance with the manufacturer's recommended procedures, as necessary, should automatic safety features not resolve any baghouse alarm or baghouse malfunction.
	3. Perform visolite testing (or equivalent) of the baghouse as needed but at least once every 12 months in order to locate leaks, bag failures, or other problems.
EU1, EU2	4. Monitor weight of ash processed utilizing the first conveyor belt scale immediately after the crusher and prior to the rotary drum dryer on an hourly, daily, monthly, and 12-month rolling period basis.
	5. Monitor hours of operation on a daily, monthly, and 12-month rolling period basis.
Facility- wide	6. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	7. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13.

Table 3 Key:

EU# = Emission Unit Number

PCD# = Pollution Control Device Number

USEPA = United States Environmental Protection Agency

Table 4	
EU#	Record Keeping Requirements
EU1	1. Record natural gas consumption in MMCF per month and 12-month rolling period basis.
	2. Electronically record the cause, duration, and resolution of any malfunction of the baghouse including exceedances of the maximum inlet temperature and differential pressure.
	3. Record the results of any visolite testing and the dates performed.
EU1, EU2	4. Record weight of ash processed in wet tons per hour, day, month, and 12-month rolling period basis.
	5. Record hours of operation per day, month, and 12-monthly rolling basis.
Facility- wide	6. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report .
	7. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	8. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EU(s) and PCD(s) approved herein on-site.
	9. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	10. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s), PCD(s), and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	11. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	12. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	13. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU# = Emission Unit Number
PCD = Pollution Control Device
SOMP = Standard Operating and Maintenance Procedure
USEPA = United States Environmental Protection Agency
MMCF = million cubic feet

Table 5	
EU#	Reporting Requirements
Facility-wide	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a “Responsible Official” as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Northeast Regional Office of MassDEP, BAW Permit Chief by telephone [(978) 694-3200], email [nero.air@massmail.state.ma.us], or fax [(978) 694-3499] as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the BAW Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report every three years to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
	4. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30-days from MassDEP’s request.
	5. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	6. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:

EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
EU1	1. Stack testing ports that comply with 40 CFR 60, Appendix A, Method 1 shall be installed at the inlet of the baghouse and at the outlet of the baghouse in the exhaust stack.
EU2	2. Minimize fugitive emissions, as needed, from ash storage piles and other areas open to the ambient air by utilizing a dedicated water spray truck, water misting sprays, and enclosures including but not limited to buildings and closing doors.

Table 6 Key:

EU# = Emission Unit Number

- B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.” The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
EU1	49.2	4.59	48 to 54	194 to 248

Table 7 Key:

EU# = Emission Unit Number

°F = Degree Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and/or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest

protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.

- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain “Fail-Safe Provisions,” which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with

the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Cosmo Buttaro by telephone at (978) 694-3281, or in writing at the letterhead address.

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Cosmo Buttaro
Environmental Engineer

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Susan P. Ruch
Deputy Regional Director &
Acting Permit Chief
Bureau of Air and Waste

cc: Board of Health, 24 Lowell Street, Peabody, MA 01960
Fire Headquarters, 41 Lowell Street, Peabody, MA 01960
Anthony Dell'Anno, Covanta SEMASS Partnership, 141 Cranberry Highway, West Wareham, MA 02576
MassDEP/NERO - M. Persky

ecc: MassDEP/Boston – Y. Tian
MassDEP/NERO – M. Altobelli, E. Braczyk